Available online at www.sciencedirect.com

ScienceDirect

Procedia - Social and Behavioral Sciences 195 (2015) 1051 – 1056

Procedia
Social and Behavioral Sciences

World Conference on Technology, Innovation and Entrepreneurship

Creating Online Storylines for Increasing the Knowledge Retention

Bülent Dös*

Zirve University, Kizilhisar Kampusu, 27260 Gaziantep-Turkey

Abstract

Storyline creates a partnership between the teacher and the learners in which the teacher designs the 'line' – the chapters of the story, and the learners create and develop the story. The Storyline approach encourages children to study and search for information with a real sense of purpose. Students get involved in learning process actively and construct their knowledge in an authentic environment. Active learning in authentic learning environment supports long term memory and knowledge retention. The paper is an attempt to explore the views of students about storyline method on their knowledge retention. The results obtained indicate storyline method can enhance student retention of knowledge because it provides higher order thinking, technology usage, active, authentic and constructivist learning environment for students.

Peer-review under responsibility of Istanbul Univeristy.

Keywords: Storyline method, knowledge retention, social media

1. Introduction

The terms "learning" and "memory" are often used as if they are directly observable entities, but they are not. Learning and memory are theoretical concepts used to explain the fact that experience influences behavior (Rudy, 2014: 2). Learning is the process of acquiring new information, while memory refers to the persistence of learning in a state that can be revealed at a later time (Squire, 1987: 3). Knowledge retention is related with long term memory that the aim of the learning process is to construct knowledge in memory.

Storytelling can be used in learning process effectively as a teaching, learning and assessment material. Storytelling can enhance students learning (Kordaki, 2014). Teachers can use storytelling as a teaching material in

* Corresponding author. Tel.: +903422116816; fax: +903422116677.
E-mail address: bulent.dos@zirve.edu.tr

Peer-review under responsibility of Istanbul Univeristy.
doi:10.1016/j.sbspro.2015.06.148

their lessons to emphasize the important concepts, to summarize the important information. Studies suggest that there are positive effects in intellectual, social and emotional development of students who are encouraged to use storytelling (Mokhtar, Halim and Kamarulzaman, 2011). Students also can learn independently from storyboards in online learning. Storytelling also can be used as an assessment material such as completing the empty places or the result section. Teachers can create their own digital stories and use them as anticipatory sets or hooks at the beginning of a lesson to capture the attention of their students and increase their interest in exploring new ideas (Burmark, 2004; Ormrod, 2004). By creating digital stories, students can develop various types of literacy such as: information literacy, visual literacy, technology literacy, and media literacy.

2. Literature Review And Hypotheses

Storytelling can be used as a material to support the retention of knowledge. Storyline method is based on the principle that students can contextualize the knowledge and retain and retrieve it more easily (Eagan, 1988). Retention is important in education because it is the human mechanism *par excellence* for storing the vast quantity of ideas and information represented by any field of knowledge (Ausubel, 2000). Storytelling can be used to support the long term memory. Students could be also asked to analyze/interpret, theorize, and reflect intellectually and creatively on their digital stories to make some conclusions and reflect on their experience (Benmayor, 2008). Acquisition and retention of knowledge is the product of an active, integrative, interactional process between instructional material (subject matter) and relevant ideas in the learner's cognitive structure to which the new ideas are relatable in particular ways (Ausubel, 2000).

As mentioned in Montero et al. (2008), much has been written about the benefits generated by active participation in collaborative work compared with traditional lecturing. Basically this comparison can be summarized as a more effective development of high-level thinking processes, more effective learning, greater retention of knowledge, a higher degree of student satisfaction; and higher student self-esteem. (Kulik & Kulik, 1979; Johnson et al., 1998; Slavin et al., 1985). As teachers we need to ensure that the largest possible amount of information goes from students' short-term memories to their long-term memories and, therefore, we apply techniques that encourage the retention of information.

Within education, storyboarding has been used to design for online learning. However, it tends simply to replace technical documentation for software rather than specify the instructional design process (Jantke & Knauf, 2005). Storyboarding methods that focus more explicitly on learning processes have been developed for the design and implementation of undergraduate courses (Knauf, Sakurai, Dohi, Tsuruta, & Gonzalez, 2007), and have been explored as a learning tool for pupils (e.g. Barron, 2000). However, there has been very little reporting of storyboarding methods being systematically applied to the design of domain-specific learning tasks.

There are many different definitions of "Digital Storytelling," but in general, they all revolve around the idea of combining the art of telling stories with a variety of digital multimedia, such as images, audio, and video. StoryboardThat is online software to create three pictures storyline with animation and text. This is a simple material that students can create the important aspects of the subject. One can easily register to the website, watch the demo video and learn how to create a simple storyline with three pictures. These pictures can be created by using cartoons. The important thing here is to summarise the subject and put the main ideas to the story. Although the positive effect that the use of active learning has on knowledge acquisition is widely accepted, there is still a need to know the effect of storytelling on knowledge retention. The objective of this study is to explore the effect of storytelling on knowledge retention and the views of students on the learning process.

Hypotheses

The research questions in our study try to confirm the following hypotheses:

1. Storytelling method will increase the knowledge retention of the students.
2. Online storytelling can be used as an effective learning material.

3. Methodology

3.1. Research Goal

The aim of this research was to explore the effect of the storytelling method (Here we used StoryboardThat (SBT) software) on students' knowledge retention. To achieve this goal, Instructional Technology and Material Design course was selected as an experimental course. This course has 2 hours theoretical and 2 hours practical sessions. Four weeks of this lesson (theoretical session) is planned before the term started. At the first week SBT software was taught to the students. How they will use the website, how they will create the stories and how they will share their stories on Facebook group. At the last three weeks preplanned subjects were taught in theoretical sessions. In practical sessions discussions were made about stories. Facebook was used as a communication tool between students and teacher and students and students. Students were asked to create their storylines and send it to the Facebook group. Every student had to make comment at least two students. Students made some comments about their peer's stories and consequently everybody got feedback about their product.

3.2. Sample and Data Collection

This study adopted a qualitative researched method. Students were asked with a paper including three open ended questions about their views on SBT as a learning material. This study was conducted in a middle-size private university at the south-east of Turkey. The students were in their second year in their primary school teacher training education. 27 students were participated voluntarily to this study. The study completed at four weeks. At the end of the four weeks students were asked about their views. Data were analyzed through qualitative data analysis such as content analysis.

3.3. Analyses and Results

The first hypothesis of this study should be tested was "Storytelling method will increase the knowledge retention of the students". To test this hypothesis the researcher made a test after one day using storyboard about the specific subject (The subject was Gagne's 9 events of instruction). Again the researcher made the second test without using storyboard after one day (The subject was Mastery Learning). The two test was analysed with paired sample t-test. The results are showed below the table.

Table 1. Paired sample t-test results for two tests

Tests	N	X	SS	Sd	t	p
With Storyboard	27,00	68,88	25,01	26	3,37	.00*
Without Storyboard	27,00	55,92	24,54			

*p<0,01

Table 1 showed that there is a significant difference between the tests done with using storyline method and without storyline method. Storyline method significantly increased the test scores of the students (t=3,37, p<,01). That means we can accept the first hypothesis that storyline method can increase the retention of knowledge.

The second hypothesis of this study should be tested was "Online storytelling can be used as an effective learning material." To test these hypothesis perceptions of the students were investigated by asking semi-structured questions. Three questions were asked to investigate the perceptions of the students. These questions were; 1. How storyline method was effected your learning process? 2. 1. How storyline method was affected your knowledge retention? 3. What do you think about Storyboard as a learning material?

The first question was asked to explore the students' perceptions about effects of the storytelling method in their learning process. According to the content analysis of the data, students firstly and mainly have a common idea that they need to make an extra study on the subject to explore the main idea. To find the main idea and put this into a three picture they need to have an extra study on the subject. This led them to study again, emphasize the important concepts and summarise the subject. Students also stated that they self-regulated the concepts in their mind to present in a story and consequently they this developed their higher order thinking skills.

Visuality also seems very important for acquiring new or abstract concepts in learning process. Students emphasized the importance of the visuality that this leads them to gain the new information easily and quickly. In SB students created their stories with cartoons and captions. Students stated it was very entertaining to create cartoons and to read the subject with cartoons.

Active learning is a model of instruction that focuses the responsibility of learning on learners. The researcher asked to the students to create a storyline in a specific subject. Students had the responsibility to put any cartoon and caption in their storyline. Within this method students reported their active participation and active learning while they are creating their storylines. Students also stated this method increased their retention of knowledge because they accept this as a reflection of knowledge.

Finally students showed their satisfaction about creating storylines in online software because they come up with a new learning method. Different methods for diverse learners can be accepted as a key component in learning process. Facing different methods in learning process can increase the satisfaction and motivation. Students reported their satisfaction and the augmentation in their motivation for active participation to learning process. Even some students indicated that they are using storyboard to create different stories except for homework.

The second question was to explore the power of the storyline method in students' knowledge retention. Almost all the students reported they remember the subjects they created with storyline method. This question was asked to the students after three weeks. Most of the students reported they don't exactly remember the subjects they learned in the lesson. That means as a new and different method, storyline increased the students' retention of knowledge. The first reason students indicated to remember the homework was the creating stories on their own. To create unique story about a specific subject students need to think and construct the knowledge elaborately. That's why they made an extra effort to learn the subject, to find out the important concepts. This lead students to code the information to the long term memory and they gained new learning. Students also stated active participation and creating the stories on their own supported their recalling information.

Students also emphasized the creating process was very entertaining and funny cartoons made them to remember the concepts easily. They also satisfied with others' funny cartoons; they attracted their attention to the subject. Students reported repeating the lesson outside the classroom enhanced their learning. Restudying and reviewing the lesson is indispensable for retention of knowledge.

The third question asked to the students about SB as a learning material. How this learning effective in learning process. Students reported their views about SB as a learning material. Mostly students stated the importance of using technology in learning process. In a technological world, teachers and students must use the technology effectively to enhance the learning. Students showed their satisfaction using Internet, computer and Facebook as a communication material, because they use these in their real lives. Creating storyboards with Internet, computer and Facebook supported authentic learning. Authentic learning is real life learning. It is a style of learning that encourages students to create a tangible, useful product to be shared with their world. Once an educator provides a motivational challenge, they nurture and provide the necessary criteria, planning, timelines, resources and support to accommodate student success. The teacher becomes a guide on the side or an event manager, a facilitator not a dictator. Processes become the predominant force and the content collected is organized appropriately into portfolios. Usefulness, easy to use and no time and location constraints of using SB as a storyline creator caused students satisfaction. Students created their storylines easily wherever and whenever they want.

Using SB supported to create constructivist and authentic learning environment for students. Storyline method

also gives the responsibility of the whole process to the students. That means all these factors can be seen very important for learning process and metacognition. Because constructivist and authentic learning environment provide higher order thinking skills such as metacognition.

4. Conclusion

During the implementation phase the researcher has come to conclusion that storyline method using StoryboardThat software can be used effectively in learning process. Because it is very easy to use, very easy to learn and very easy to share via social media such as Facebook. Most of the students accepted the idea that Storyline method can enhance the learning. Extra and elaborated thinking and studying the subject to produce three picture storyline led students to understand the subject very well. Active learning opportunity is another advantage of the storyline method. Students liked to study on it, because at the end of the storyline method, a product is created and this production made student satisfied. Visuality is another important aspect of the storyline method. Students emphasized to the visuality of this method with cartoons. Visuality made learning subject easy and understandable.

Almost all the students reported they remember the subjects they created with storyline method. Because they created the stories on their own, they thought about the subject to explore the key concepts and themes. Using cartoons attracted students to learn the subject as well as create the story. Many students didn't refuse to create stories with SBT because it was very entertaining. Cartoons also made students to remember the key concepts more easily because of visuality.

Finally students were asked to evaluate the SBT software as a learning material. Mostly students reported their satisfaction of using this software. Some of students stated they will use this software outside the classroom to learn new things. Also using technology in this very technological world was one of the main attraction of SBT software students reported.

In general we can conclude that, Storyline method can enhance student retention of knowledge because it provides higher order thinking, technology usage, active, authentic and constructivist learning environment for students. Perez-Sabater et al., (2011) have found that active learning would have a positive effect on the students' knowledge retention. Mokhtar et al., (2011) have found that students demonstrated progress with each storytelling in specific language skills such as vocabulary, comprehension, sequencing, and story recall. Visauality, cartoons, accessibility and usefulness were the important aspects of SBT software as learning and teaching material. Using Facebook as a communication tool facilitated the study process and satisfied the students in their communication with the teacher.

References

Ausubel, D.P. (2000) The acquisition and retention of knowledge: A cognitive view. Boston : Kluwer.

Barron, B. (2000). Problem solving in video-based microworlds: Collaborative and individual outcomes of high-achieving sixth-grade students *Journal of Educational Psychology, 92 (2) (2000)*, pp. 391–398

Benmayor, R. (2008). Digital Storytelling as a Signature Pedagogy for the New Humanities. *Arts and Humanities in Higher Education, 7*, pp. 188-204.

Burmark, L. (2004, May/June). Visual presentations that prompt, flash & transform. Media and Methods, 40, (6).

Egan, K. (1988). Teaching as storytelling: An alternate Approach to Teaching and Curriculum, London: Routledge

Jantke, K., & Knauf, R. (2005). Didactic design through storyboarding: standard concepts for standard tools. In First international workshop on dissemination of elearning technologies and applications Cape Town: South Africa (pp. 20–25).

Johnson, D. W., Johnson, R. T. & Smith, K. A. (1998). Active learning: Cooperation in the college classroom. Minnesota: Interaction Book Edina.

Knauf, R., Sakurai, Y., Dohi, S., Tsuruta, S., Gonzalez, A. (2007). Toward making didactics a subject of knowledge engineering. In Seventh IEEE international conference on advanced learning technologies Nigata: Japan (pp. 788–792).

Kordaki, M. (2014). On the design of educational digital stories: the Ed-W model, Procedia - *Social and Behavioral Sciences 116 (2014)* 1631 – 1635

Kulik, J. A. & Kulik, C.L.C., (1979). College teaching. In P. L. Peterson & H.J.Walberg (Eds.). Research on teaching: Concepts, findings, and implications. Berkeley: McCutcheon

Mokhtar, N.H., Halim, M.F.A. & Kamarulzaman, S.Z.S. (2011). The Effectiveness of Storytelling in Enhancing Communicative Skills, *Procedia Social and Behavioral Sciences 18 (2011)* 163–169

Montero, B., Rising, B. & Perez-Sabater, C. (2008). Research on the assessment of individual contributions to groupwork. In Bagdonas, E., Patasiene, I. & Rutkauskiene D. (Ed.), Games: Virtual Words and Reality.

Pérez-Sabater, C., Montero-Fleta, B., Pérez-Sabater, M., & Rising, B. (2011). Active learning to improve long-term knowledge retention. Actas del XII Simposio Internacional de Comunicación Social. Santiago de Cuba. 75-79.

Proceedings of the 39th Conference International Simulation and Gaming Association, pp. 20-31. University of Kaunas: Lithuania.

Ormrod, J. E. (2004). Human learning (4th ed.). Upper Saddle River, NJ: Pearson Educational, Inc.

Rudy, J.W. (2014). The Neurobiology of Learning and Memory, Sinauer Associates, Inc.; 2 edition

Slavin, R., Sharan, S., Kagan, S., Lazarawitz, R.H., Webb, C. &. Schmuck, R. (Eds.), (1985). Learning to cooperate, cooperating to learn. New York: Plenum.

Squire, L.R. (1987). Memory and Brain, Oxford University Press